FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 3

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CIBOLO, CITY OF	480267
GUADALUPE COUNTY, UNINCORPORATED AREAS	480266
LULING, CITY OF	480096
MARION, CITY OF	480268
NEW BERLIN, CITY OF	481625
NEW BRAUNFELS, CITY OF	485493
SANTA CLARA, CITY OF	480013
SCHERTZ, CITY OF	480269
SEGUIN, CITY OF	485508
SELMA, CITY OF	480046
STAPLES, CITY OF	481529

FEMA

PRELIMINARY
4/7/2017

REVISED:

FLOOD INSURANCE STUDY NUMBER
48187CV001B

Version Number 2.3.3.3

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FLOOD INSURANCE STUDY REPORT
GUADALUPE COUNTY, TEXAS

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal

Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community's regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Guadalupe County, Texas.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC-8) sub-basins affecting each, are shown in Table 1. The FIRM panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS report, the location of that data is identified

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Cibolo, City of	480267	12100202, 12100304	48187C0210F 48187C0230F 48187C0235F 48187C0240F 48187C0245F	

Table 1: Listing of NFIP Jurisdictions, (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Guadalupe County, Unincorporated Areas	480266	12100202, 12100203, 12100303, 12100304	48187C0020F[2] 48187C0035G 48187C0040F 48187C0045F 48187C0055G 48187C0065G 48187C0070G 48187C0090F 48187C0095F 48187C0110F 48187C0115F 48187C0120F 48187C0130F 48187C0135F 48187C0140F 48187C0145F 48187C0155F 48187C0160G 48187C0165F 48187C0170F 48187C0180G 48187C0190G 48187C0195G 48187C0210F 48187C0220F 48187C0230F 48187C0235F 48187C0240F 48187C0245F 48187C0255F 48187C0260F 48187C0265F 48187C0270F 48187C0280F 48187C0285F 48187C0290F 48187C0295F 48187C0305F 48187C0310F 48187C0315F 48187C0320F 48187C0330F 48187C0335F 48187C0340F 48187C0355F 48187C0360F 48187C0370F 48187C0380F 48187C0385F	

Table 1: Listing of NFIP Jurisdictions, (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Guadalupe County, Unincorporated Areas	480266	12100202, 12100203, 12100303, 12100304	48187C0390F 48187C0395F 48187C0405F 48187C0410F 48187C0415F 48187C0420F 48187C0430F 48187C0435F 48187C0440F 48187C0445F 48187C0455F 48187C0480F	
Luling, City of[1]	480096	12100203	48187C0195G	Caldwell County FIS, 2012
Marion, City of	480268	12100304	48187C0235F	
New Berlin, City of[1]	481625	12100304	48187C0265F 48187C0360F 48187C0380F 48187C0390F	Bexar County FIS, 2010
New Braunfels, City of[1]	485493	12100202, 12100203, 12100304	48187C0090F 48187C0095F 48187C0105F[2] 48187C0110F 48187C0115F 48187C0120F 48187C0130F 48187C0140F	Comal County FIS, 2009
Santa Clara, City of	480013	12100202, 12100304	48187C0095F 48187C0230F 48187C0235F 48187C0255F	
Schertz, City of[1]	480269	12100202, 12100304	48187C0090F 48187C0210F 48187C0220F 48187C0230F 48187C0240F	Bexar County FIS, 2010; Comal County FIS, 2009

Table 1: Listing of NFIP Jurisdictions, (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Seguin, City of	485508	12100202	48187C0140F 48187C0145F 48187C0260F 48187C0270F 48187C0280F 48187C0285F 48187C0290F 48187C0295F 48187C0305F	
Selma, City of[1]	480046	12100304	48187C0210F	Bexar County FIS, 2010; Comal County FIS, 2009
Staples, City of	481529	12100203	48187C0065G 48187C0155F 48187C0160G	

[1]Community is mapped in multiple counties. This FIS only covers the portion within Guadalupe County

[2]Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 31, "Map Repositories," within this FIS Report.

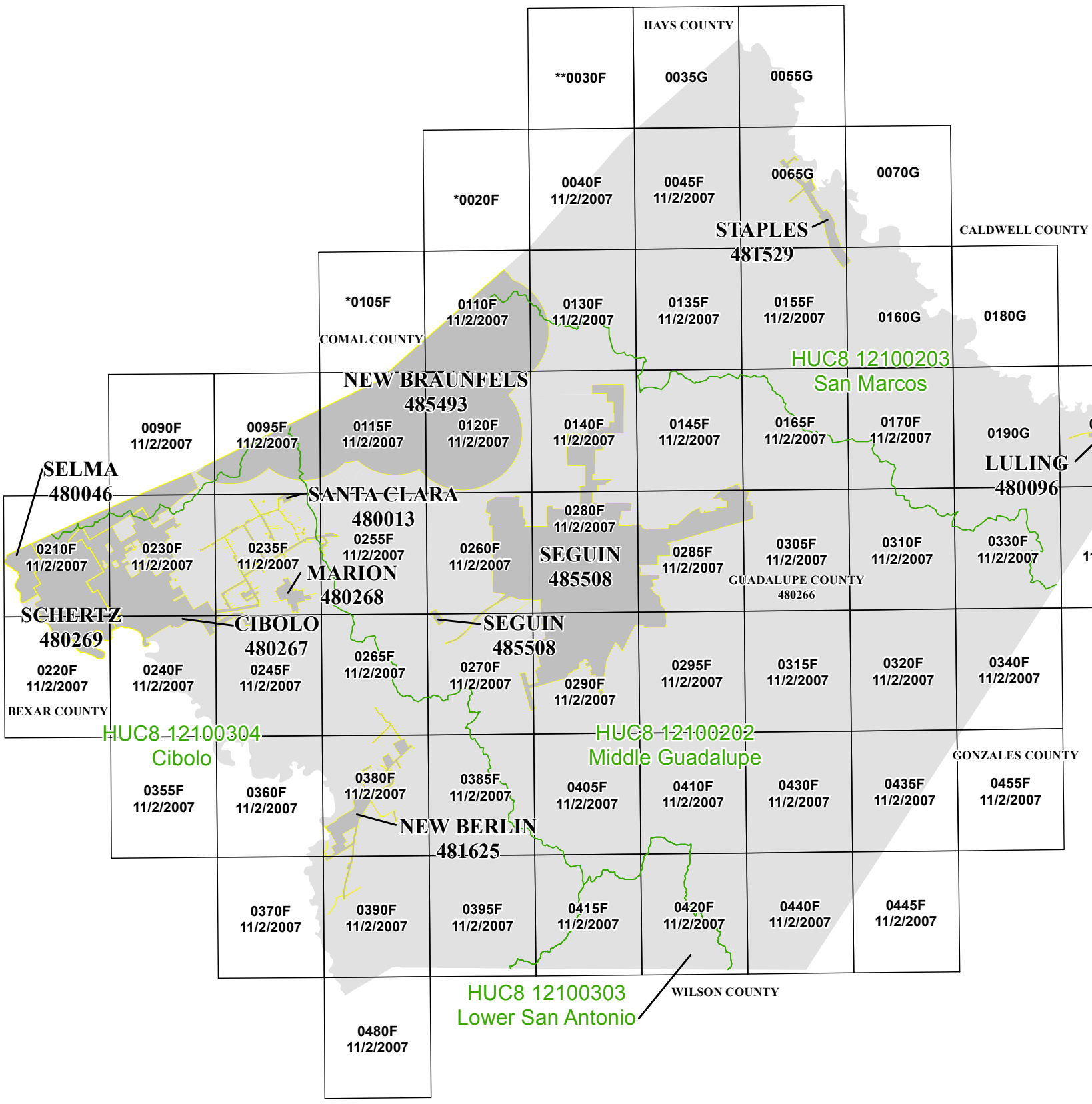
- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Guadalupe County became effective on November 2, 2007. Refer to Table 28 for information about subsequent revisions to the FIRMs.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Guadalupe County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries and USGS HUC-8 codes.

Figure 1: FIRM Panel Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before 11/2/2007

N

1 inch = 24,054 feet 1:288,653

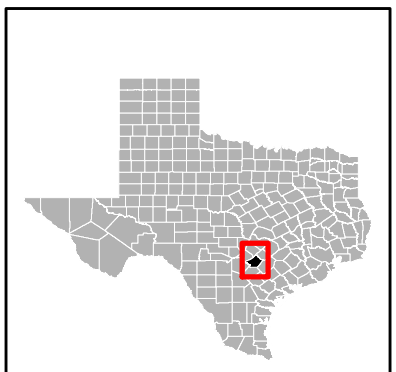
Feet
0 13,000 26,000 52,000

Map Projection:
State Plane Lambert Conformal Conic, Texas South Central Zone FIPS 4204; North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

*PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
**PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP PANEL INDEX

GUADALUPE COUNTY, TEXAS and Incorporated Areas

PANELS PRINTED: 0035, 0040, 0045, 0055, 0065, 0070, 0090, 0095, 0110, 0115, 0120, 0130, 0135, 0140, 0145, 0155, 0160, 0165, 0170, 0180, 0190, 0195, 0210, 0220, 0230, 0235, 0240, 0245, 0255, 0260, 0265, 0270, 0280, 0285, 0290, 0295, 0305, 0310, 0315, 0320, 0330, 0335, 0340, 0355, 0360, 0370, 0380, 0385, 0390, 0395, 0405, 0410, 0415, 0420, 0430, 0435, 0440, 0445, 0455, 0480

PRELIMINARY
4/7/2017

FEMA

MAP NUMBER
48187CIND0B

MAP REVISED

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 28 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

Figure 2. FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was Texas State Plane south central zone (FIPSZONE 4204)**.** The horizontal datum was the North American Datum of 1983 NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988**.** These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988**,** visit the National Geodetic Survey website at www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by TxDOT and U.S. Department of Commerce. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Guadalupe County, Texas, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

Figure 2. FIRM Notes to Users

ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before 11/2/2007.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS
This Notes to Users section was created specifically for Guadalupe County, Texas, effective Month xx, xxxx.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Guadalupe County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

Figure 3: Map Legend for FIRM

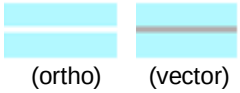
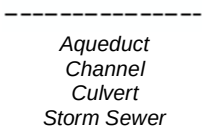
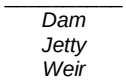
	Regulatory Floodway determined in Zone AE.
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood.
	Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.
	Unshaded Zone X: Areas of minimal flood hazard.
FLOOD HAZARD AND OTHER BOUNDARY LINES	
	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
	Channel, Culvert, Aqueduct, or Storm Sewer
	Dam, Jetty, Weir

Figure 3: Map Legend for FIRM

	Levee, Dike, or Floodwall
Bridge	Bridge
COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.*	
CBRS AREA 09/30/2009	Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.
OTHERWISE PROTECTED AREA 09/30/2009	Otherwise Protected Area
REFERENCE MARKERS	
22.0	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
B 20.2	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
5280 21.1	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
17.5	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
8	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
513	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)

Figure 3: Map Legend for FIRM

ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}$E	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Guadalupe County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Table 2, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Guadalupe County, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic

data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Alligator Creek	New Braunfels, City of	Schwarslose Rd	Comal County	12100202	1.63		Y	AE	1983
Alligator Creek	Guadalupe County, Unincorporated Areas; New Braunfels, City of	Confluence with Geronimo Creek	Schwarslose Rd	12100202	3.44		Y	AE	1979
Cibolo Creek	Cibolo, City of; Guadalupe County, Unincorporated Areas; Schertz, City of; Selma, City of	Interstate Highway 10	Guadalupe County boundary	12100304	17.27		Y	AE	2005
Cibolo Creek	Guadalupe County, Unincorporated Areas; New Berlin, City of;	Guadalupe & Wilson County	Interstate Highway 10	12100304	22.35		Y	AE	1993
Cibolo-Dietz Creek Diversion	Schertz, City of	Confluence with Deitz Creek	Confluence with Cibolo Creek	12100304	1.45		N	AE	2005
Cibolo Creek Landfill Diversion	Schertz, City of	Convergence with Cibolo Creek	Divergence from Cibolo Creek	12100304	0.78		Y	AE	2005
Cibolo Creek Tributary No.13	Cibolo, City of	Confluence with East Branch Dietz Creek	Approximately 400 feet downstream of Kove Lane	12100304	0.85		N	AE	2005

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Cottonwood Creek North	Guadalupe County, Unincorporated Areas	Confluence with York Creek	Approximately 800 feet upstream of County Road 245	12100203	9.38		Y	AE	1979
Cottonwood Creek South	Guadalupe County, Unincorporated Areas	Confluence with Guadalupe River	County Road 419	12100202	10.5		Y	AE	1979
Dietz Creek	Selma, City of; Schertz, City of	Confluence with Cibolo Creek	Comal County	12100304	5.5		Y	AE	2005
East Branch Dietz Creek	Cibolo, City of; Schertz, City of	Confluence with Cibolo Creek	Approximately 0.12 miles upstream of Cibolo Valley Road	12100304	4.16		Y	AE	2005
Elm Creek North	Guadalupe County, Unincorporated Areas	Confluence with Cottonwood Creek South	County Road 4118	12100202	2.79		Y	AE	1979
Elm Creek South	Guadalupe County, Unincorporated Areas	Wilson County	County Road 4128	12100304	8.65		Y	AE	1979
Geronimo Creek	Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	Confluence with Guadalupe River	County Road 130	12100202	15.8		Y	AE	1979

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Guadalupe River	Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	Geronimo Creek	Dunlap Dam	12100202	23.12		Y	AE	2005
Guadalupe River	New Braunfels, City of	Dunlap Dam	Comal County	12100202	5.31		Y	AE	2003
Guadalupe River	Guadalupe County, Unincorporated Areas	Gonzales County	Geronimo Creek	12100202	21.92		Y	AE	1979
Interstate Highway-10 Diversion	Guadalupe County, Unincorporated Areas	Confluence with Cibolo Creek	Limit of Detailed Study Divergence from Cibolo Creek	12100304	1.52		N	AE	1993
Long Creek	Guadalupe County, Unincorporated Areas	Confluence with York Creek	Approximately 9850 feet upstream of FM 1979	12100203	6.08		Y	AE	1979
San Marcos River	Guadalupe County, Unincorporated Areas; Luling, City of; Staples, City of	Gonzales County boundary	Hays County boundary	12100203	41.93		Y	AE	2016
Santa Clara Creek	Guadalupe County, Unincorporated Areas; Santa Clara, City of	Confluence with Cibolo Creek	County Road 361	12100304	16.94		Y	AE	1979

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Santa Clara Creek Tributary No.1	Guadalupe County, Unincorporated Areas; Santa Clara, City of	Confluence with Santa Clara Creek	County Road 367	12100304	6.71		Y	AE	1979
Santa Clara Creek Tributary No.2	Guadalupe County, Unincorporated Areas; Marion, City of; Santa Clara, City of	Confluence with Santa Clara Creek Tributary No.1	County Road 354	12100304	0.72		Y	AE	1979
Town Creek	Cibolo, City of; Guadalupe County, Unincorporated Areas	Approximately 2000 feet downstream of FM 78	2126 feet upstream of Dean Road	12100304	4.77		Y	AE	2005
Town Creek Tributary No.1	Cibolo, City of	Confluence with Town Creek	4114 feet upstream of Confluence with Town Creek	12100304	0.78		Y	AE	2005
Town Creek Tributary No.1	Cibolo, City of; Guadalupe County, Unincorporated Areas	Downstream of FM 1103	Approximately 500 feet upstream of Short Weil Rd	12100304	3.27		N	A	2005
Town Creek Tributary No.2	Cibolo, City of; Guadalupe County, Unincorporated Areas; Santa Clara, City of	Confluence with Town Creek	1016 feet upstream of Short Weyel Road	12100304	5.15		N	A	2005

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Town Creek Tributary No.4	Cibolo, City of; Guadalupe County, Unincorporated Areas	Confluence with Town Creek Tributary No. 1	1340 feet upstream of Wiedner Road	12100304	0.8		N	A	2005
Walnut Branch	Guadaluple County Unincorporated Areas; Seguin, City of	Confluence with Guadalupe River	Approximately 2550 feet upstream of Interstate 10	12100202	3.84		Y	AE	2005
York Creek	Guadalupe County, Unincorporated Areas	Confluence with San Marcos River	Hays County	12100203	20.74		Y	AE	1979

Table 2: Flooding Sources Included in this FIS Report, (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Zone A Streams (Alligator Creek, Bear Hollow Creek, Blue Creek, Brushy Creek, Buzzard Creek, Campbell Branch, Cantau Creek, Cardell Creek, Cibolo Tributary No. 16, Cottonwood Creek North, Darst Creek, Deadman Creek, Deer Creek, Dukes Hollow Creek, Ecleto Creek, Elm Creek South, Fourmile Creek, Highsmith Creek, Konde Branch, Krams Creek, Little Creek, Long Branch, Long Creek (Tributary of the Guadalupe River), Mill Creek, Nash Creek, O'Neil Creek, Red Branch, Rudolph Creek, Sandies Creek, Salt Creek, Santa Clara Creek, Saul Creek, Sawlog Creek, Smith Creek, Tidwell Creek, Town Creek, Town Creek Tributary No.1, Town Creek Tributary No.2, Town Creek Tributary No.4, Wolf Creek, and Youngs Creek)	Guadalupe County, Unincorporated Areas; New Berlin, City of; New Braunfels, City of; Santa Clara, City of; Schertz, City of; Seguin, City of; Selma, City of	*	*	*	169.32		N	A	2005

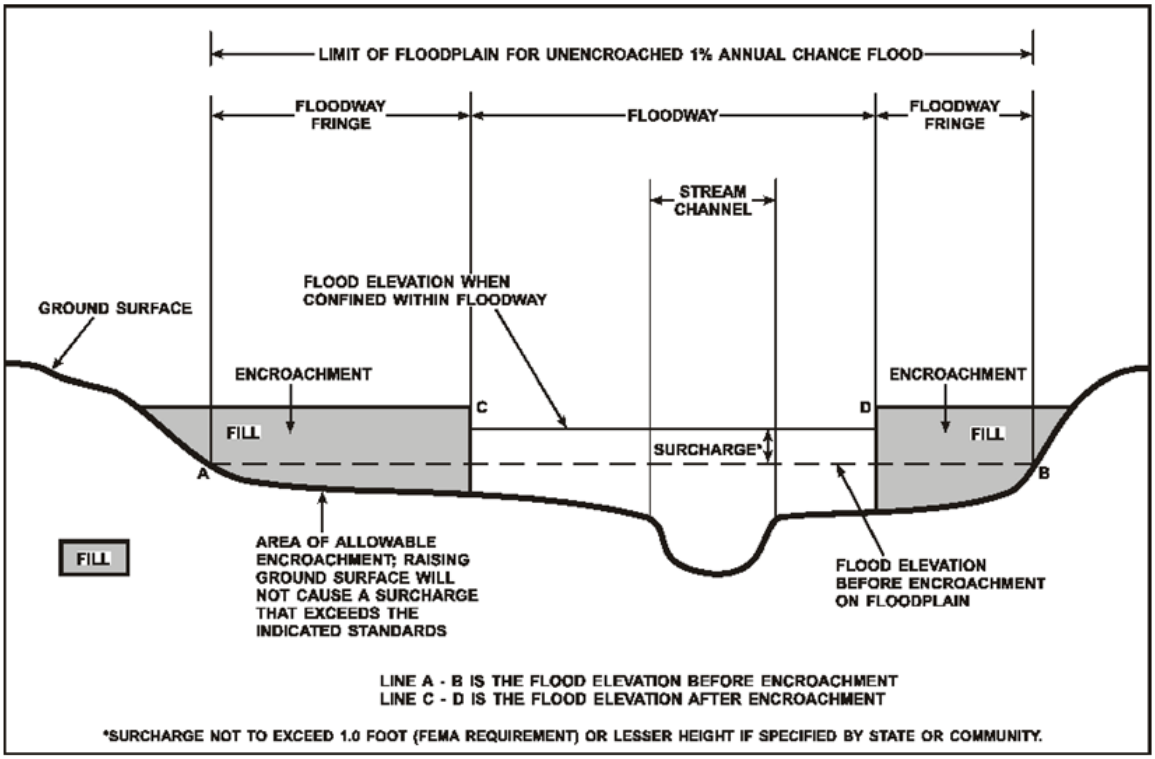
2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, “Floodway Data.”

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

This section is not applicable to this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, “Map Legend for FIRM.” Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Guadalupe County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Cibolo, City of	A, AE, X
Guadalupe County, Unincorporated Areas	A, AE, X
Luling, City of	AE, X
Marion, City of	AE, X
New Berlin, City of	A, AE, X
New Braunfels, City of	A, AE, X
Santa Clara, City of	A, AE, X
Schertz, City of	A, AE, X
Seguin, City of	A, AE, X
Selma, City of	A, AE, X
Staples, City of	A, AE, X

3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

Table 4: Coastal Barrier Resources System Information

[Not Applicable to this Flood Risk Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Cibolo	12100304	Cibolo Creek	Begins at the upstream limit of Cibolo Creek, extends southeast, affecting portions of Bandera, Bexar, Comal, Guadalupe, Karnes, Kendall and Wilson counties	854
Lower San Antonio	12100303	San Antonio River	Begins at the confluence of the San Antonio River and Calaveras Creek, also meeting the confluences of Cibolo Creek and Ecleto Creek downstream, extending southeast. The watershed covers portions of Bexas, Calhoun, Dewitt, Goliad, Guadalupe, Karnes, Refugio, Victoria and Wilson counties	1483
Middle Guadalupe	12100202	Guadalupe River	Begins at the upstream limit of the Guadalupe River, extends southeast, affecting one half of the eastern half of Caldwell County, as well as portions of Bastrop, Comal, DeWitt, Fayette, Gonzales, Guadalupe, Karnes and Wilson counties.	2138
San Marcos	12100203	San Marcos River	Begins at upstream limit of the Blanco River, extends southeast, affecting a majority of Caldwell County, as well as portions of Blanco, Comal, Gonzales, Guadalupe, Hays, Kendall and Travis counties.	1359

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Guadalupe County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
San Marcos River	Severity of flooding along the San Marcos River is dictated by the location and intensity of rainfall in the Blanco and Upper San Marcos watersheds. Martindale and Luling have been historically impacted by flooding along the San Marcos River including most recently by the May 2015 flood event. However, the flood of record at the Luling USGS gage is the October 1998 event, which crested about 5 feet higher than the May 2015 event. Although the October 1998 event rainfall depth was lower than the May 2015 event, it was centered over the Upper San Marcos and lower Blanco watersheds, producing a higher flood peak at Luling.
Other Major streams	The valleys of the major streams within Guadalupe County have long suffered from periodic flood problems. Flooding occurs along the streams and tributaries, cuasing damage to rural and urban developments in the county. Most of the flood-producing storms occur during the spring and fall. Small overflows occur at least annually, causing minor damage. Larger floods, which caused damage to residential property, occur when the county receives 5.7 inches or more of rainfall in 24 hours which occurs approximately once in five years.

Table 7 contains information about historic flood elevations in the communities within Guadalupe County.

Table 7: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
San Marcos River	FM 1977 Crystal Clear WSC Staples Well	481.85	May 2015	100	Guadalupe Blanco River Authority High Water Marks

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Guadaluple County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Guadalupe River	Dunlap Dam	Dam	Downstream of Lake Dunlap	
Guadalupe River	Lake Placid Dam	Dam	Downstream of Lake Placid	

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Guadalupe River	McQueeny Dam	Dam	Downstream of Lake Mcqueeny	
Guadalupe River	Nolte	Dam	Downstream of Meadow Lake	
Guadalupe River	Stacke Dam	Dam	Approximately 500 ft of Highway 123	
Long Branch	York Creek SCS Dam No.10	Dam	Approximately 2600 feet upstream of Dreibrodt Road	
San Marcos River	N/A	Dam	At station 190714 along San Marcos River	
York Tributary 33	York Creek SCS Dam No. 12	Dam	Downstream of SCS Site 12 Reservoir	
York Tributary 37	York Creek SCS Dam No. 11	Dam	Downstream of SCS Site 11 Reservoir	
York Tributary 51	York Creek SCS Dam No. 9	Dam	Downstream of SCS Site 9 Reservoir	
York Tributary 55	York Creek SCS Dam No. 8	Dam	Downstream of SCS Site 8 Reservoir	
York Tributary 61	York Creek SCS Dam No. 7	Dam	Downstream of SCS Site 7 Reservoir	
York Tributary 67	York Creek SCS Dam No. 6	Dam	Downstream of SCS Site 6 Reservoir	

4.4 Levees

This section is not applicable to this Flood Risk Project.

Table 9: Levees

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

In addition to these flood events, the “1-percent-plus”, or “1%+”, annual chance flood elevation has been modeled and included on the flood profile for certain flooding sources in this FIS Report. While not used for regulatory or insurance purposes, this flood event has been calculated to help illustrate the variability range that exists between the regulatory 1% annual chance flood elevation and a 1% annual chance elevation that has taken into account an additional amount of uncertainty in the flood discharges (thus, the 1% “plus”). For flooding sources whose discharges were estimated using regression equations, the 1%+ flood elevations are derived by taking the 1% annual chance flood discharges and increasing the modeled discharges by a percentage equal to the average predictive error for the regression equation. For flooding sources with gage- or rainfall-runoff-based discharge estimates, the upper 84-percent confidence limit of the discharges is used to compute the 1%+ flood elevations.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, “Incorporated Letters of Map Change”, which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for

each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Alligator Creek	County Road at Cross Section A	22.8	8,344	*	12,199	14,353	20,779
Alligator Creek	At FM 758	19.4	7,745	*	11,323	13,322	19,286
Alligator Creek	County Road at Cross Section G	17.8	7,376	*	10,784	12,688	18,368
Alligator Creek	At New Braunfels downstream Corporate Limits	16.3	2,119	*	7,668	9,047	12,249
Alligator Creek	At New Braunfels upstream Corporate Limit	14.3	4,987	*	7,490	8,838	11,963
Cibolo Creek	Downstream of Dry Hollow Creek	540.1	29,380[1]	*	46,300[1]	55,680[1]	78,340[1]
Cibolo Creek	Approximately 3000 feet downstream of County Road 417	480.4	29,760[1]	*	47,210[1]	56,370[1]	78,240[1]
Cibolo Creek	Downstream of Martinez Creek	473.7	37,610	*	59,020	67,490	89,940
Cibolo Creek	Upstream of Martinez Creek	386.3	27,810[1]	*	50,730[1]	56,960[1]	80,360[1]
Cibolo Creek	Downstream of Santa Clara Creek	379.8	28,930	*	51,450	58,300	84,520
Cibolo Creek	Upstream of Santa Clara Creek	317.0	28,740[1]	*	51,060[1]	58,020[1]	84,040[1]

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cibolo Creek	Downstream of Interstate Highway 10	307.4	33,550[1]	*	61,640[1]	70,970[1]	107,340[1]
Cibolo Creek	180 feet E-NE of end of Schmidt-Craft Lane	305.44	33,797	*	81,444	99,565	140,967
Cibolo Creek	3500 feet downstream of Weir Road	303.31	33,941	*	81,763	99,891	141,170
Cibolo Creek	Below Stream CC-27	302.17	33,977	*	81,893	100,009	141,326
Cibolo Creek	Above Stream CC-27	300.01	33,977	*	81,881	99,986	141,297
Cibolo Creek	246 feet downstream of confluence with Dietz Creek	297.34	33,980	*	81,850	99,926	141,228
Cibolo Creek	235 feet upstream Pecan Grove Drive	*	34,253	*	74,816	83,554	99,095
Cibolo Creek	1200 feet downstream of FM 78	*	34,253	*	69,696	74,844[2]	81,545
Cibolo Creek	Aviation Boulevard	*	34,253	*	74,816	83,554[3]	99,095
Cibolo Creek	448 feet S-SE of intersection of FM 1518 and Commercial Place	282.55	34,253	*	81,826	99,724	140,985
Cibolo Creek	981 feet SE of end of Laguna Hills	280.66	34,393	*	82,047	99,903	141,087
Cibolo Creek	166 feet upstream of IH 35 N Access Road	272.54	34,329	*	81,637	99,423	140,562

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cibolo Creek	731 feet upstream of Guadalupe County Boundary	271.61	34,404	*	81,696	99,469	140,722
Cibolo Creek Landfill Diversion		*	*	*	*	8,700	*
Cibolo Creek Tributary No. 13	600 feet downstream of Deer Creek Boulevard	0.627	1,106	*	1,728	2,041	2,753
Cibolo Creek Tributary No. 13	Green Valley Road	0.083	185	*	280	329	446
Cibolo-Dietz Creek Diversion		*	*	*	*	16,600	*
Cottonwood Creek North	At FM 1339	25.0	4,835	*	8,882	11,143	17,888
Cottonwood Creek North	County Road at Cross Section G	21.9	4,398	*	8,274	10,440	16,901
Cottonwood Creek North	At FM 1979	14.8	2,994	*	6,147	7,908	13,162
Cottonwood Creek North	At FM 1978	12.7	2,173	*	5,070	6,688	11,516
Cottonwood Creek South	At State Route 123	27.4	8,800	*	13,000	15,360	22,400
Cottonwood Creek South	County Road at Cross Section D	26.1	8,536	*	12,610	14,899	21,128
Cottonwood Creek South	County Road at Cross Section E	6.0	4,114	*	6,078	7,181	10,472

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cottonwood Creek South	County Road at Cross Section G	3.1	2,913	*	4,303	5,084	7,414
Dietz Creek	Confluence with Cibolo Creek	12.12	8,423	*	14,458	17,589	25,541
Dietz Creek	300 feet upstream of FM 78	11.93	8,231	*	14,169	17,225	25,127
Dietz Creek	Confluence of East Branch Dietz Creek	11.18	7,817	*	13,223	16,046	23,851
Dietz Creek	2300 feet downstream of SH 3009	7.49	5,582	*	9,428	11,361	16,371
Dietz Creek	Elbel Road	6.94	5,221	*	8,826	10,664	15,246
Dietz Creek	Live Oak Road	6.05	4,563	*	7,671	9,287	13,314
Dietz Creek	Schertz Parkway	5.48	4,396	*	7,321	8,856	12,559
Dietz Creek	Maske Road	5.06	4,137	*	6,806	8,228	11,638
Dietz Creek	2850 feet downstream of Wiederstein Road	3.83	3,433	*	5,383	6,437	8,918
Dietz Creek	Confluence of Cibolo Tributary 16	2.51	2,647	*	4,058	4,736	6,373
Dietz Creek	1000 feet upstream of IH-35	2.10	2,242	*	3,441	4,044	5,479
Dietz Creek	Lookout Road	1.59	1,747	*	2,660	3,122	4,201
East Branch Dietz Creek	Confluence with Dietz Creek	3.69	5,160	*	8,187	9,724	13,145

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
East Branch Dietz Creek	260 feet downstream of Deer Creek Boulevard	3.03	4,385	*	6,929	8,250	11,241
East Branch Dietz Creek	Deer Creek Boulevard	2.4	3,499	*	5,527	6,583	9,024
East Branch Dietz Creek	1100 feet downstream of Green Valley Road	1.62	2,546	*	3,983	4,711	6,493
East Branch Dietz Creek	850 feet upstream of Crest Oak Road	0.86	1,595	*	2,500	2,958	4,060
Elm Creek North	At FM 467	3.2	3,089	*	4,516	5,313	7,692
Elm Creek North	County Road at Cross Section C	1.9	2,406	*	3,518	4,139	5,993
Elm Creek South	County Road at Cross Section A	53.9	12,100	*	17,875	21,120	30,800
Elm Creek South	County Road at Cross Section B	42.8	10,912	*	16,120	19,046	27,776
Elm Creek South	At FM 467	20.6	7,568	*	11,180	13,210	19,624
Elm Creek South	County Road at Cross Section F	9.2	5,060	*	7,475	8,832	12,880
Geronimo Creek	At US Route 90	61.2	13,738	*	20,085	23,631	34,210
Geronimo Creek	At FM 20	55.7	13,000	*	19,007	22,363	32,374
Geronimo Creek	County Road at Cross Section H	39.5	11,064	*	16,176	19,032	27,552
Geronimo Creek	At State Route 123	30.9	9,681	*	14,154	16,653	24,108

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Geronimo Creek	County Road at Cross Section N	4.1	3,527	*	5,156	6,066	8,782
Geronimo Creek	County Road at Cross Section P	3.2	3,089	*	4,523	5,313	7,692
Guadalupe River	470 feet downstream of confluence with Krams Creek	367.2	73,000	*	126,900	151,300	219,200
Guadalupe River	790 feet downstream of confluence with Cottonwood Creek South	359.94	72,800	*	126,400	150,700	218,400
Guadalupe River	3425 feet upstream of SH 123 Bypass (cross section V)	326.4	70,900	*	122,800	146,300	212,700
Guadalupe River	115 feet downstream of confluence with Walnut Branch (cross section AG)	322.36	70,700	*	122,500	145,900	212,100
Guadalupe River	7240 feet upstream of Stockdale Highway (cross section AN)	309.79	70,300	*	121,500	144,600	210,300
Guadalupe River	35 feet downstream of confluence with Deadman Creek	305.69	70,200	*	121,000	144,000	209,400
Guadalupe River	2765 feet upstream of Interstate Highway 10 Westbound (cross section BE)	286.08	68,400	*	118,000	140,400	204,700

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Guadalupe River	620 feet downstream of confluence with Youngs Creek	279.81	67,900	*	117,200	139,400	203,500
Guadalupe River	6909 feet downstream of confluence with Long Creek (cross section CB)	260.47	66,700	*	115,300	136,900	200,300
Guadalupe River	760 feet downstream of confluence with Long Creek (cross section CF)	250.99	65,300	*	113,100	134,200	196,900
Guadalupe River	6848 feet downstream of Dunlap Dam (cross section CN)	238.73	61,900	*	106,700	126,400	187,200
Guadalupe River	46 feet upstream of Dunlap Dam	233.46	62,000	*	105,800	125200	185,700
Guadalupe River	2928 feet upstream of Dunlap Dam	231.53	61,800	*	105,400	124,700	185,100
Guadalupe River	275 feet downstream of Kingsbury St	295.84	69,700	*	120,000	142,800	207,600
Interstate Highway-10 Diversion		*	0	*	2,308	6,142	29,050
Long Creek	At Dam No. 10	6.6	628	*	2,705	3,865	7,326
Long Creek	At FM 1979	5.5	4,103	*	5,999	7,058	10,217

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
San Marcos River	At the Luling gage	838.9	47,410	*	103,870	142,430	253,130
San Marcos River	Just downstream of confluence with York Creek	756.6	48,960	*	105,510	144,110	257,130
San Marcos River	Parallel to Martindale Diversion	N/A	42,850	*	77,230	95,220	124,430
San Marcos River	Just downstream of Purgatory Creek	86.9	7,400	*	10,980	15,420	45,460
Santa Clara Creek	County Road at Cross Section A	62.1	13,830	*	20,220	23,790	34,440
Santa Clara Creek	County Road at Cross Section C	53.9	12,816	*	18,737	22,045	31,914
Santa Clara Creek	County Road at Cross Section E	23.1	8,482	*	12,402	14,591	21,123
Santa Clara Creek	At FM 465	17.4	7,330	*	10,717	12,609	18,253
Santa Clara Creek	At FM 78	14.9	6,731	*	9,840	11,578	16,761
Santa Clara Creek	County Road at Cross Section K	12.0	6,085	*	8,897	10,468	15,154
Santa Clara Creek	County Road at Cross Section M	2.7	2,858	*	4,179	4,917	7,118
Santa Clara Creek Tributary No. 1	At FM 78	4.1	3,527	*	5,156	6,066	8,782

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Santa Clara Creek Tributary No. 1	County Road at Cross Section D	2.8	2,968	*	4,327	5,091	7,370
Santa Clara Creek Tributary No. 2	County Road at Cross Section A	1.9	2,397	*	3,505	4,124	5,970
Town Creek	Downstream of Schaefer Road	8.39	6,200	*	11,659	14,147	21,992
Town Creek	Downstream of FM 78	8.14	6,203	*	11,700	14,096	21,975
Town Creek	Confluence of Town Creek Tributary No. 1	7.44	7,185	*	12,386	15,079	21,511
Town Creek	2500 feet upstream of SH Spur 539	4.04	3,669	*	6,333	7,731	11,117
Town Creek	Downstream of FM 1103	3.65	3,632	*	6,177	7,497	10,598
Town Creek	Downstream of Borgfeld Road	3.45	3,629	*	6,123	7,417	10,396
Town Creek	1860 feet upstream of Wiedner Road	2.54	3,078	*	5,039	6,031	8,332
Town Creek	775 feet upstream of Green Valley Road	1.62	2,257	*	3,612	4,323	5,983
Town Creek	750 feet upstream of Dean Road	0.42	762	*	1,189	1,405	1,905
Town Creek Tributary No. 1	Confluence with Town Creek	3.39	3,844	*	6,725	8,144	11,460

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Town Creek Tributary No. 1	Weil Road	3.16	3,883	*	6,592	7,965	11,105
Town Creek Tributary No. 1	Confluence of Town Tributary 4	2.48	3,727	*	6,087	7,287	10,091
Town Creek Tributary No. 1	2225 feet downstream of Brite Road	1.15	1,683	*	2,801	3,391	4,715
Town Creek Tributary No. 1	1850 feet upstream of Brite Road	0.79	1,653	*	2,566	3,028	4,134
Walnut Branch	50 feet upstream of Klein Street	7.22	3,350	*	4,550	5,700	9,100
Walnut Branch	85 feet upstream of Guadalupe Street	6.87	3,250	*	4,350	5,600	9,000
Walnut Branch	200 feet upstream of Saunders Street	6.49	3,150	*	4,200	5,600	9,000
Walnut Branch	925 feet downstream of Vaughan Avenue	6.26	3,100	*	4,200	5,500	9,000
Walnut Branch	60 feet upstream of Kingsbury Street	5.95	2,950	*	4,150	5,400	8,800
Walnut Branch	1140 feet downstream of Interstate Highway 10 eastbound	5.59	2,900	*	4,050	5,400	8,700

Table 10: Summary of Discharges, (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Walnut Branch	120 feet upstream of Interstate Highway 10 westbound	4.61	2,800	*	4,400	5,300	7,600
Walnut Branch	2595 feet upstream of Interstate Highway 10 westbound	3.86	2,500	*	4,000	4,750	6,800
York Creek	At FM 20	126.0	10,455	*	19,614	24,731	39,996
York Creek	At FM 1339	77.5	7,281	*	14,416	18,402	30,295
York Creek	At State Route 123	63.3	6,300	*	12,690	16,020	26,910

[1]Decrease in discharge due to the effects of Muskingum-Cunge routing and/or channel losses

[2]8,700 cfs diversion between UP Railroad and landfill

[3]16,000 cfs Cibolo-Dietz diversion upstream UP Railroad

[4]Discharges decreases due to storage routing effects

*Not calculated for this Flood Risk Project

Figure 7: Frequency Discharge-Drainage Area Curves

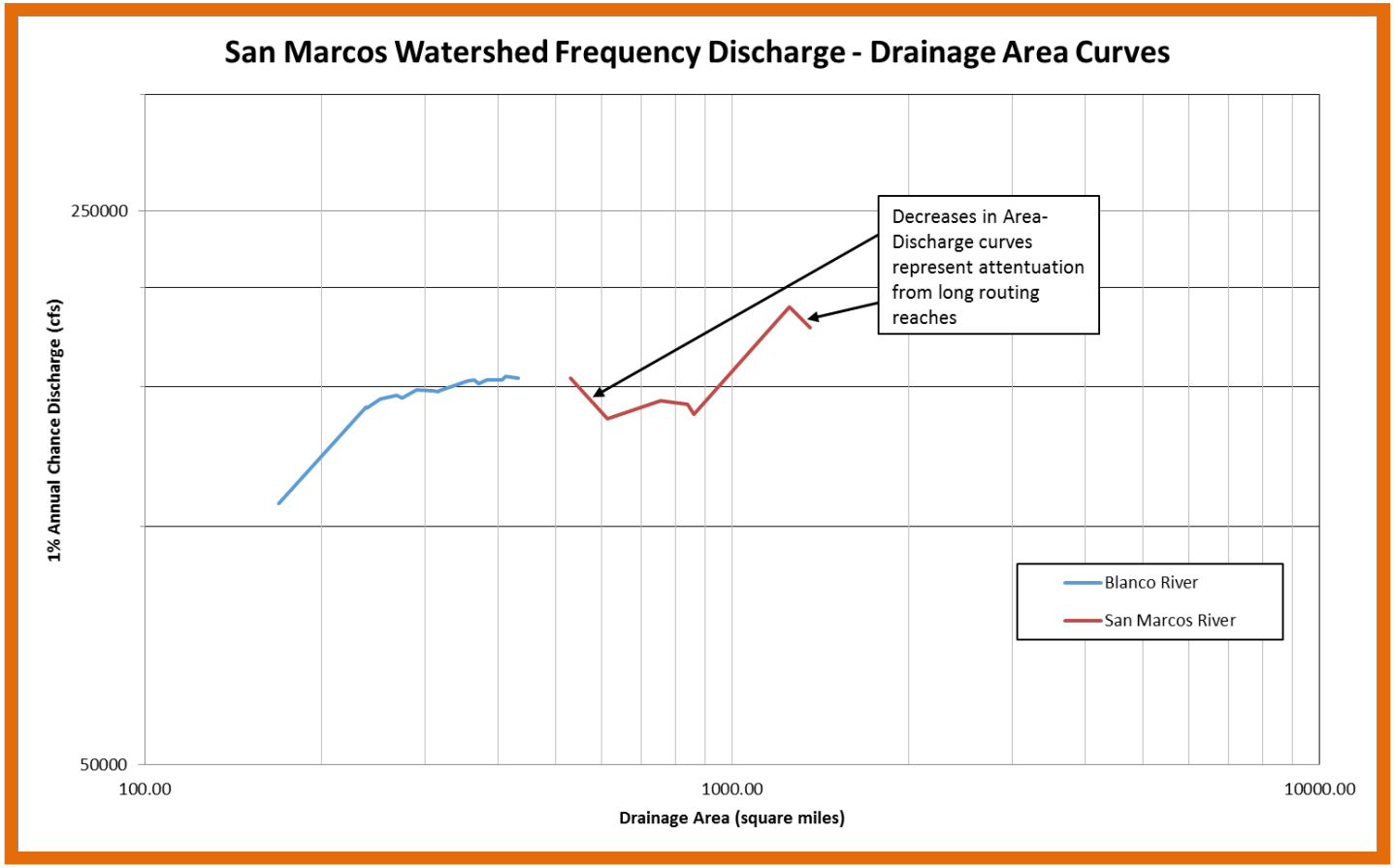


Table 11: Summary of Non-Coastal Stillwater Elevations

[Not Applicable to this Flood Risk Project]

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Cibolo Creek	08185000	USGS	Cibolo Creek at Selma, TX	274	04/01/1946	*
Comal River	08169000	USGS	Comal River at New Braunfels, TX	130	12/19/1927	*
Guadalupe River	08168500	USGS	Guadalupe River above Comal River at New Braunfels, TX	1,518	12/19/1927	*
Guadalupe River	08169500	USGS	Guadalupe River at New Braunfels, TX	1,652	01/27/1915	*
San Marcos	08172000	USGS	San Marcos River at Luling, TX	838	04/18/1939	*

*Gage is currently active at time of FIS creation

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed in Table 24, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness

coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Alligator Creek	Schwarslose Rd	Comal County	Log-Pearson Type III Frequency Analysis	HEC-2	August 1983	AE w/ Floodway	
Alligator Creek	Confluence with Geronimo Creek	Schwarslose Rd	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
Cibolo Creek	Upstream of Interstate Highway 10	Guadalupe County boundary	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	Based on preliminary models prepared by the USACE Fort Worth District, in support of an ongoing Planning Study for the San Antonio River Authority, the Guadalupe Blanco River Authority and the San Antonio Water System. The USACE study was not complete at the time of the the 2007 FIS report preparation and the hydrology modeling is subject to revision. The USACE modeling represents the best available data for this reach at this time.
Cibolo Creek	Wilson County	Interstate Highway 10	HEC-1	HEC-2	January 1993	AE w/ Floodway	
Cibolo-Dietz Creek Diversion	Confluence with Deitz Creek	Confluence with Cibolo Creek	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE	
Cibolo Creek Landfill Diversion	Convergence with Cibolo Creek	Divergence from Cibolo Creek	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	

Table 13: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Cibolo Creek Tributary No.13	Confluence with East Branch Dietz Creek	Approximately 400 feet downstream of Kove Lane	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Cottonwood Creek North	Confluence with York Creek	Approximately 800 feet upstream of County Road 245	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
Cottonwood Creek South	Confluence with Guadalupe River	County Road 419	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
Dietz Creek	Confluence with Cibolo Creek	Comal County	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
East Branch Dietz Creek	Confluence with Cibolo Creek	Approximately 0.12 miles upstream of Cibolo Valley Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	

Table 13: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Elm Creek North	Confluence with Cottonwood Creek South	County Road 4118	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
Elm Creek South	Wilson County	County Road 4128	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
Geronimo Creek	Confluence with Guadalupe River	County Road 130	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
Guadalupe River	Geronimo Creek	Dunlap Dam	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Guadalupe River	Dunlap Dam	Comal County	New Braunfels Drainage and Erosion Control Design Manual	HEC-RAS 3.0.1	08/22/2003	AE w/ Floodway	The analytical approach in the City manual generally follows NRCS Procedures, which is an umbrella term to cover a wide range of related procedures. Details of the NRCS procedures can be found in the publication Technical Release Number 55 (TR-55) and in Section 4 of the National Engineering Handbook.

Table 13: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Guadalupe River	Gonzales County	Geronimo Creek	Log-Pearson Type III Frequency Analysis	SCS-WSP-2	03/01/1979	AE w/ Floodway	
Interstate Highway-10 Diversion	Confluence with Cibolo Creek	Limit of Detailed Study Divergence from Cibolo Creek	Peak Discharge values were determined using the modified discharge per inch of runoff curves	HEC-2	January 1993	AE	
Long Creek	Confluence with York Creek	Approximately 9850 feet upstream of FM 1979	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
San Marcos River	Gonzales County boundary	Hays County boundary	HEC-HMS 4.1	HEC-RAS 4.1	8/31/2016	AE w/ Floodway	
Santa Clara Creek	Confluence with Cibolo Creek	County Road 361	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"

Table 13: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Santa Clara Creek Tributary No. 1	Confluence with Santa Clara Creek	County Road 367	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"
Santa Clara Creek Tributary No. 2	Confluence with Santa Clara Creek Tributary No.1	County Road 354	Log-Pearson Type III Frequency Analysis	SCS-WSP-2	03/01/1979	AE w/ Floodway	
Town Creek	Approximately 2000 feet downstream of FM 78	2126 feet upstream of Dean Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Town Creek	Approximately 4.2 miles upstream of confluence with Santa Clara Creek	Approximately 2000 feet downstream of FM 78	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.
Town Creek Tributary No. 1	Confluence with Town Creek	4114 feet upstream of Confluence with Town Creek	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
Town Creek Tributary No. 1	Downstream of FM 1103	Approximately 500 feet upstream of Short Weil Rd	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.

Table 13: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Town Creek Tributary No. 2	Confluence with Town Creek	1016 feet upstream of Short Weyel Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.
Town Creek Tributary No. 4	Confluence with Town Creek Tributary No. 1	1340 feet upstream of Wiedner Road	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	A	Culvert and bridge survey data was generated by combining a top of road survey point with field sketches and structures measurements.
Walnut Branch	Confluence with Guadalupe River	Approximately 2550 feet upstream of Interstate 10	HEC-HMS 2.2.2	HEC-RAS 3.1.2	September 2005	AE w/ Floodway	
York Creek	Confluence with San Marcos River	Hays County	Peak Discharge values were determined using the modified discharge per inch of runoff curves	SCS-WSP-2	03/01/1979	AE w/ Floodway	Curves from the NRCS "*Work Plan for Watershed Protection and Flood Prevention, York Creek Watershed*"

Table 13: Summary of Hydrologic and Hydraulic Analyses, (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Zone A Streams (Alligator Creek, Bear Hollow Creek, Blue Creek, Brushy Creek, Buzzard Creek, Campbell Branch, Cantau Creek, Cardell Creek, Cibolo Tributary No. 16, Cottonwood Creek North, Darst Creek, Deadman Creek, Deer Creek, Dukes Hollow Creek, Ecleto Creek, Elm Creek South, Fourmile Creek, Highsmith Creek, Konde Branch, Krams Creek, Little Creek, Long Branch, Long Creek (Tributary of the Guadalupe River), Mill Creek, Nash Creek, O'Neil Creek, Red Branch, Rudolph Creek, Sandies Creek, Salt Creek, Santa Clara Creek, Saul Creek, Sawlog Creek, Smith Creek, Tidwell Creek, Town Creek, Wolf Creek, and Youngs Creek)	*	*	*	Regression Equations with Geo-RAS generated cross-sections, boundary conditions created by slope/area method	September 2005	A	

Table 14: Roughness Coefficients

Flooding Source	Channel "n"	Overbank "n"
Alligator Creek downstream of Schwarslose Rd	0.025-0.065	0.060-0.110
Alligator Creek at Municipal Airport	0.035-0.040	0.060-0.070
Cibolo Creek, I-10 and downstream	0.045-0.050	0.090-0.110
Cibolo Creek upstream of I-10	0.040-0.065	0.055-0.085
Cibolo Creek Tributary No. 13	0.035-0.045	0.040-0.090
Cottonwood Creek North	0.075-0.085	0.080-0.100
Cottonwood Creek South	0.040-0.060	0.075-0.110
Dietz Creek	0.038-0.085	0.045-0.085
East Branch Dietz Creek	0.040-0.085	0.040-0.100
Elm Creek North	0.050	0.110
Elm Creek South	0.050-0.060	0.090-0.130
Geronimo Creek	0.030-0.050	0.050-0.110
Guadalupe River downstream of Geronimo Creek	0.030-0.050	0.070-0.110
Guadalupe River from Geronimo Creek to downstream of Dunlap Dam	0.018-0.045	0.018-0.100
Guadalupe River upstream of Dunlap Dam	--[1]	--[1]
Interstate Highway 10 Diversion	0.040-0.075	0.040-0.080
Long Creek	0.035-0.050	0.050-0.110
San Marcos River	0.045-0.065	0.060-0.120
Santa Clara Creek	0.035-0.065	0.060-0.110
Santa Clara Creek Tributary No. 1	0.040-0.045	0.075-0.090
Santa Clara Creek Tributary No. 2	0.040	0.090
Town Creek	0.060-0.070	0.065-0.090
Town Creek Tributary No. 1	0.055	0.065-0.075
Walnut Branch	0.015-0.110	0.015-0.110

Table 14: Roughness Coefficients, (continued)

Flooding Source	Channel "n"	Overbank "n"
York Creek	0.045-0.090	0.065-0.095

[1]Data Not Available

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 15: Summary of Coastal Analyses

[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not Applicable to this Flood Risk Project]

Table 16: Tide Gage Analysis Specifics

[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

Table 17: Coastal Transect Parameters

[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not Applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey (NGS) at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

The countywide conversion factor of 0.8 feet was calculated for Guadalupe County.

Table 20: Countywide Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

Table 21: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM Database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping.

Base map information shown on the FIRM was derived from the sources described in Table 22.

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Political boundaries	TxDOT	2015	1:5,000	Municipal and county boundaries
Transportation features	U.S. Department of Commerce	2015	*	Roads and railroads from Tiger /line shapefile
Transportation features	Bexar Metro 911	2004	1:24,000	Roads and Railroad shapefile

*Data not available

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, “Floodway Data.”

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data					
		Description	Scale	Contour Interval	$RMSE_z$	$Accuracy_z$	Citation
Guadalupe County, Unincorporated Areas; New Braunfels, City of; Seguin, City of	Guadalupe River; Walnut Branch	Light Detection and Ranging data (LiDAR)	N/A	2 ft	N/A	N/A	SPECTRUM 2004

Community	Flooding Source	Source for Topographic Elevation Data					
		Description	Scale	Contour Interval	$RMSE_z$	$Accuracy_z$	Citation
Guadalupe County, Unincorporated Areas; Luling, City of; Staples, City of	San Marcos River	Light Detection and Ranging data (LiDAR)	N/A	NA	18.59 cm	170 cm	COA 2003
Seguin, City of	Walnut Branch	Surveyed Channel (digital)	1:3,600	1 ft	N/A	N/A	USACE 2003
New Braunfels, City of	Guadalupe River including ETJ area	Topographic map	1:6,000	2 ft	N/A	N/A	LANDATA 2001
New Braunfels, City of	Alligator Creek	Topographic map	1:4,800	4 ft	N/A	N/A	TOBIN 1982
Cibolo, City of; Marion, City of; Guadalupe County, Unincorporated Areas; Santa Clara, City of; Schertz, City of	Cibolo Creek	Topographic maps (TIN)	N/A	2 ft / 5 ft	N/A	N/A	N/A
Cibolo, City of; New Berlin, City of; Santa Clara, City of, Schertz, City of; Seguin, City of	All other streams	7.5-Minute Quads – 30 Meter DEM's	1:24,000	10 ft / 20 ft	N/A	N/A	USGS TOPO

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,050[1]	365	1,927	7.5	591.7	591.7	592.7	1.0
B	2,150[1]	479	2,485	5.8	592.1	592.1	593.1	1.0
C	10,300[1]	190	1,148	11.7	605.3	605.3	606.3	1.0
D	10,400[1]	192	1,238	10.9	605.7	605.7	606.7	1.0
E	13,800[1]	732	4,532	2.9	613.2	613.2	614.2	1.0
F	13,900[1]	749	5,053	2.6	613.8	613.8	614.8	1.0
G	17,750[1]	325	1,905	6.7	619.1	619.1	620.1	1.0
H	17,850[1]	492	2,895	4.4	619.8	619.8	620.8	1.0
I	3,930[2]	339/90[3]	2,125	4.3	631.4	631.4	632.4	1.0

[1]Stream distance in feet above confluence with Geronimo Creek
[2]Stream distance in feet above downstream corporate limits (extended)
[3]Total width/Width Within Corporate Limits

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: ALLIGATOR CREEK

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	265,730	1,609/1,550	11,419	4.9	482.9	482.9	483.8	0.9
B	270,200	501/346	8,189	6.8	489.4	489.4	490.1	0.7
C	278,900	1,788/1,600	10,822	5.2	500.1	500.1	500.9	0.8
D	285,120	1,899/1,650	16,218	3.5	507.2	507.2	508.1	0.9
E	290,850	2,536/900	19,045	3.5	512.8	512.8	513.8	1.0
F	294,180	1,822/1,500	15,653	4.3	517.4	517.4	518.4	1.0
G	298,600	1,673/500	18,441	3.7	522.4	522.4	523.4	1.0
H	304,100	1,135/235	13,096	4.3	530.1	530.1	531.1	1.0
I	310,600	780/575	9,119	6.2	537.4	537.4	538.3	0.9
J	315,980	1,986/186	19,718	2.9	545.7	545.7	546.7	1.0
K	319,180	1,553/1,343	15,994	3.6	548.8	548.8	549.7	0.9
L	322,560	1,720/1,620	27,465	2.1	551.2	551.2	552.2	1.0
M	325,830	844/294	10,042	5.8	554.9	554.9	555.8	0.9
N	330,900	1,272/1,012	11,841	4.9	562.1	562.1	562.9	0.8
O	337,600	2,054/1,064	24,408	2.4	567.3	567.3	568.2	0.9
P	341,650	2,130/1,995	17,746	3.3	570.0	570.0	570.7	0.7
Q	348,300	2,942/2,742	15,710	4.5	578.8	578.8	579.6	0.8
R	353,500	3,359/3,259	22,892	3.1	586.2	586.2	587.2	1.0

[1]Stream distance in feet above confluence with San Antonio River
[2]Width/Width Within County

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CIBOLO CREEK

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	357,080	466/341	9,436	7.5	591.4	591.4	591.7	0.3
T	362,150	1,574/300	24,191	2.9	596.8	596.8	597.6	0.8
U	372,840	2,072/2,022	17,484	4.1	607.9	607.9	608.4	0.5
V	376,880	840/780	11,222	6.3	613.5	613.5	614.3	0.8
W	379,700	1,012/387	8,406	8.4	618.8	618.8	619.7	0.9
X	382,522	1,851/1,617	17,764	9.0	626.6	626.6	627.4	0.8
Y	383,811	909/424	14,376	8.0	629.5	629.5	630.2	0.7
Z	386,042	1,445/1,061	21,327	5.6	633.7	633.7	634.6	0.9
AA	387,329	1,886/1,762	22,015	6.3	635.8	635.8	636.3	0.5
AB	394,251	370/84	9,235	11.0	640.4	640.4	641.1	0.7
AC	396,117	785/530	12,572	10.4	648.2	648.2	649.0	0.8
AD	399,722	1,670/1,623	21,840	6.5	654.0	654.0	654.8	0.8
AE	401,658	714/492	19,720	5.1	656.8	656.8	657.6	0.8
AF	403,073	571/182	14,874	6.7	657.8	657.8	658.6	0.8
AG	405,800	548/31	18,222	5.5	661.0	661.0	661.9	0.9
AH	407,323	306/223	8,521	11.7	662.3	662.3	663.1	0.8
AI	408,038	628/592	20,866	4.8	665.8	665.8	666.7	0.9
AJ	413,959	2,831/29	37,392	2.7	668.4	668.4	669.3	0.9

[1]Stream distance in feet above confluence with San Antonio River
[2]Width/Width Within County

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CIBOLO CREEK

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AK	418,516	1,906/190	19,543	5.1	672.9	672.9	673.6	0.7
AL	419,470	2,490/113	16,568	6.0	677.3	677.3	677.8	0.5
AM	423,625	693/52	11,662	8.6	686.1	686.1	687.0	0.9
AN	427,183	592/521	14,018	6.2	695.1	695.1	696.1	1.0
AO	432,987	800/631	15,893	5.5	699.9	699.9	700.7	0.8
AP	435,043	422/205	11,558	6.5	702.9	702.9	703.8	0.9
AQ	437,996	1,608/1,545	31,640	2.4	705.6	705.6	706.5	0.9
AR	440,762	243/89	6,029	12.4	706.2	706.2	707.1	0.9
AS	442,214	456/144	8,375	8.9	710.5	710.5	711.4	0.9
AT	445,235	602/267	13,377	5.6	716.5	716.5	717.3	0.8
AU	446,577	435/199	11,130	7.5	720.1	720.1	720.3	0.2
AV	448,507	1,025/862	23,287	4.3	725.4	725.4	725.4	0.0
AW	453,783	661/169	10,812	9.2	727.2	727.2	727.3	0.1
AX	456,713	446/310	11,277	8.9	734.4	734.4	734.9	0.5
AY	457,901	412/113	9,648	10.4	736.2	736.2	736.6	0.4
AZ	459,264	457/268	12,019	8.3	741.1	741.1	741.4	0.3
BA	460,345	499/223	11,748	8.5	743.4	743.4	743.7	0.3
BB	466,729	408/139	11,482	8.7	755.6	755.6	756.4	0.8
BC	471,196	1,496/824	29,405	3.4	763.0	763.0	763.8	0.8

[1]Stream distance in feet above confluence with San Antonio River
[2]Width/Width Within County

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,400	1,106	5,952	2.0	455.7	455.5[2]	456.5	1.0
B	6,350	953	4,010	2.8	460.7	460.7	461.7	1.0
C	11,900	237	1,727	6.5	471.7	471.7	472.7	1.0
D	12,000	319	2,776	4.0	473.5	473.5	474.5	1.0
E	14,300	747	4,422	2.5	479.3	479.3	480.3	1.0
F	16,500	1,055	4,029	2.6	484.6	484.6	485.6	1.0
G	20,900	1,007	4,347	2.3	493.2	493.2	494.2	1.0
H	21,800	564	4,349	2.2	499.1	499.1	500.1	1.0
I	24,800	370	2,962	3.4	505.5	505.5	506.5	1.0
J	27,900	679	3,774	2.6	512.4	512.4	513.4	1.0
K	32,100	208	1,480	5.3	521.3	521.3	522.3	1.0
L	32,200	264	2,026	3.9	522.6	522.6	523.6	1.0
M	35,800	671	3,028	2.5	530.3	530.3	531.3	1.0
N	42,450	194	1,674	4.2	548.1	548.1	549.1	1.0
O	42,550	194	1,674	4.2	549.1	549.1	550.1	1.0
P	42,900	262	1,640	4.3	550.3	550.3	551.3	1.0
Q	44,200	227	1,477	4.5	552.8	552.8	553.8	1.0
R	44,300	239	1,621	4.1	553.8	553.8	554.8	1.0

[1]Stream distance in feet above mouth
[2]Elevation Computed Without Consideration of Backwater Effects

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	46,100	701	3,036	1.9	557.5	557.5	558.5	1.0
T	46,200	609	2,613	2.3	557.8	557.8	558.8	1.0
U	46,950	410	1,617	3.6	561.0	561.0	562.0	1.0
V	47,050	377	1,661	3.5	561.6	561.6	562.6	1.0

[1]Stream distance in feet above mouth

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	800	246	6,723	2.5	471.9	468.0[3]	469.0	1.0
B	15,150	803	5,649	2.7	475.1	475.1	476.1	1.0
C	15,250	449	3,300	4.7	475.6	475.6	476.6	1.0
D	25,000	773	5,650	2.6	489.6	489.6	490.6	1.0
E	36,650	420	2,643	2.7	512.3	512.3	513.3	1.0
F	36,750	439	3,001	2.4	512.8	512.8	513.8	1.0
G	42,900	264	1,339	3.8	527.3	527.3	528.3	1.0
H	54,000	100[2]	404	5.9	580.9	580.9	581.9	1.0

[1]Stream distance in feet above mouth
[2]Discharge Contained Within the Channel
[3]Elevation Computed Without Consideration of Backwater Effects

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,571	182	1,547	12.9	685.6	685.6	686.6	1.0
B	1,643	470	5,527	3.1	692.7	692.7	693.6	0.9
C	4,076	220	2,164	5.3	693.0	693.0	693.9	0.9
D	5,147	311	2,501	5.7	696.5	696.5	696.7	0.2
E	7,476	249	2,271	6.0	697.9	697.9	698.0	0.1
F	7,657	224	1,359	7.9	699.0	699.0	699.2	0.0
G	9,059	237	1,336	7.0	702.6	702.6	702.6	0.0
H	11,790	182	1,220	7.5	708.9	708.9	708.9	0.0
I	11,886	211	1,441	6.8	709.8	709.8	709.8	0.0
J	12,597	157	859	10.3	711.3	711.3	711.3	0.0
K	12,797	152	718	12.3	713.1	713.1	713.1	0.0
L	13,118	169	1,173	7.6	716.5	716.5	716.5	0.0
M	15,612	203	1,470	5.6	722.2	722.2	722.2	0.0
N	15,753	420	3,056	2.7	727.8	727.8	728.7	0.9
O	16,445	242	1,816	4.5	727.9	727.9	728.8	0.9
P	17,084	180	1,675	3.8	728.4	728.4	729.2	0.8
Q	17,696	445	1,563	4.1	731.7	731.7	732.1	0.4
R	19,073	490	2,012	3.2	735.7	735.7	736.7	1.0

[1]Stream distance in feet above confluence with Cibolo Creek

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	19,857	420	1,725	3.7	739.6	739.6	740.1	0.5
T	21,187	255	1,370	4.7	744.3	744.3	744.8	0.5
U	21,836	380	1,851	3.5	744.6	744.6	745.5	0.9
V	22,743	340	1,330	4.8	746.8	746.8	747.7	0.9
W	23,069	320	1,517	4.2	749.0	749.0	749.4	0.4
X	23,672	235	1,240	3.8	750.2	750.2	751.1	0.9
Y	25,100	345	1,593	3.0	751.4	751.4	752.2	0.8
Z	25,970	272	546	11.8	754.0	754.0	754.0	0.0
AA	26,248	138	896	6.1	757.5	757.5	757.6	0.1
AB	26,483	236	1,135	4.2	758.3	758.3	758.4	0.1
AC	28,629	128	468	6.7	761.7	761.7	761.7	0.0
AD	29,255	350	896	3.5	765.2	765.2	765.3	0.1

[1]Stream distance in feet above confluence with Cibolo Creek

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,537	161	1,812	5.4	693.3	693.3	693.5	0.2
B	1,768	186	1,972	4.9	693.4	693.4	693.8	0.4
C	2,289	222	1,789	5.4	698.2	698.2	698.2	0.0
D	2,411	174	1,270	7.7	698.2	698.2	698.2	0.0
E	2,479	227	1,987	4.9	700.0	700.0	700.6	0.6
F	2,892	191	1,454	6.7	700.5	700.5	701.0	0.5
G	4,534	151	994	9.8	706.5	706.5	706.5	0.0
H	6,351	132	929	10.5	717.3	717.3	717.3	0.0
I	6,410	136	1,188	8.2	719.5	719.5	719.7	0.2
J	7,351	180	1,112	7.4	725.4	725.4	725.5	0.1
K	7,657	172	797,	10.4	726.4	726.4	726.4	0.0
L	8,386	260	1,716	3.8	732.3	732.3	733.1	0.8
M	8,523	310	1,829	3.6	732.5	732.5	733.2	0.7
N	9,991	200	1,375	4.8	739.5	739.5	740.5	1.0
O	10,087	180	1,350	4.9	740.6	740.6	741.3	0.7
P	11,816	145	1,010	4.7	748.7	748.7	749.3	0.6
Q	11,907	145	1,328	3.6	751.6	751.6	752.2	0.6
R	12,922	140	791	7.7	755.7	755.7	756.5	0.8

[1]Stream distance in feet above confluence with Dietz Creek

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	13,014	158	947	5.0	757.9	757.9	758.2	0.3
T	13,958	197	877	5.7	763.6	763.6	764.2	0.6
U	14,016	192	1,094	4.3	765.3	765.3	766.2	0.9
V	14,941	122	527	5.6	772.0	772.0	772.0	0.0
W	14,996	156	654	4.5	772.4	772.4	773.3	0.9
X	15,777	125	468	6.3	777.0	777.0	777.3	0.3
Y	17,793	137	307	0.8	790.3	790.3	791.3	1.0
Z	18,321	72	48	4.9	794.6	794.6	794.6	0.0
AA	19,014	54	44	5.2	802.5	802.5	802.5	0.0
AB	19,644	111	104	2.2	810.8	810.8	810.8	0.0
AC	20,340	33	38	6.1	819.6	819.6	819.6	0.0
AD	21,105	19	32	7.4	830.9	830.9	830.9	0.0
AE	21,202	100	232	2.7	834.0	834.0	834.0	0.0
AF	21,829	64	72	3.3	844.7	844.7	844.7	0.0

[1]Stream distance in feet above confluence with Dietz Creek

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	11,000	405	2,159	1.6	515.4	515.4	516.4	1.0
B	11,100	459	2,444	7.0	515.9	515.9	516.9	1.0
C	14,400	537	1,866	6.1	525.9	525.9	526.9	1.0

[1]Stream distance in feet above mouth

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	18,500	801	6,790	3.1	465.2	463.4[2]	464.4	1.0
B	26,800	1,231	8,311	2.3	471.0	471.0	472.0	1.0
C	39,250	1,284	7,031	1.9	485.6	485.6	486.6	1.0
D	39,350	1,264	6,994	1.9	485.9	485.9	486.9	1.0
E	49,900	516	3,838	2.8	504.5	504.5	505.5	1.0
F	56,250	643	3,553	2.5	516.5	516.5	517.5	1.0

[1]Stream distance in feet above mouth
[2]Elevation Computed Without Consideration of Backwater Effects

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,700	206	4,053	7.7	463.2	457.6[3]	458.6	1.0
B	14,150	432	2,660	9.2	471.0	471.0	472.0	1.0
C	14,250	407	3,231	7.6	472.5	472.5	473.5	1.0
D	23,150	449	2,411	9.8	487.8	487.8	488.8	1.0
E	23,250	401	2,977	7.9	490.7	490.7	491.7	1.0
F	36,550	172	1,727	13.0	514.3	514.3	515.3	1.0
G	36,650	165	1,817	12.3	515.0	515.0	516.0	1.0
H	56,250	196	2,897	6.6	559.1	559.1	560.1	1.0
I	56,350	416	4,601	4.1	560.0	560.0	561.0	1.0
J	63,350	407	3,873	4.3	572.1	572.1	573.1	1.0
K	65,100	196	1,705	9.8	573.4	573.4	574.4	1.0
L	65,200	316[2]	2,735	6.1	574.4	574.4	575.4	1.0
M	73,800	333	1,868	8.6	588.7	588.7	589.7	1.0
N	79,500	211	1,151	5.3	603.5	603.5	604.5	1.0
O	79,600	259	1,267	4.8	604.1	604.1	605.1	1.0
P	83,400	200	996	5.3	611.5	611.5	612.5	1.0
Q	83,500	450	2,013	2.6	612.3	612.3	613.3	1.0

[1]Stream distance in feet above mouth
[2]Discharge Contained Within the Channel
[3]Elevation Computed Without Consideration of Backwater Effects

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	228.13	2,968	64,720	1.5	384.0	384.0	385.0	1.0
B	229.47	2,694	35,520	2.7	386.9	386.9	387.9	1.0
C	230.98	278	8,480	11.2	390.4	390.4	391.4	1.0
D	233.18	578	14,880	6.3	403.4	403.4	404.4	1.0
E	236.86	946	23,040	4.1	415.3	415.3	416.3	1.0
F	239.37	254	6,190	14.4	421.3	421.3	422.3	1.0
G	242.23	1,356	19,200	4.5	431.0	431.0	432.0	1.0
H	244.63	1,626	26,720	3.2	440.0	440.0	441.0	1.0

[1]Stream distance in miles above mouth

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
I	105,194	475	15,317	10.9	458.0	458.0	458.2	0.2
J	114,736	1,270	28,966	5.2	464.4	464.4	464.7	0.3
K	115,777	1,166	24,920	6.1	464.9	464.9	465.1	0.2
L	117,310	1,731	28,000	5.4	466.8	466.8	467.2	0.4
M	118,314	1,398	23,894	6.3	467.5	467.5	467.9	0.4
N	119,260	1,598	31,212	5.0	468.8	468.8	469.1	0.3
O	120,580	2,393	40,745	3.8	470.4	470.4	470.8	0.4
P	125,223	2,650	34,634	4.5	471.4	471.4	471.9	0.5
Q	126,651	1,225	26,522	6.0	472.7	472.7	473.1	0.4
R	127,384	1,968	31,584	6.7	474.4	474.4	475.2	0.8
S	129,112	1,648	32,459	4.5	476.9	476.9	477.5	0.6
T	130,101	1,124	23,413	6.3	477.0	477.0	477.6	0.6
U	132,722	911	18,168	8.1	477.0	477.0	477.4	0.4
V	134,178	1,536	24,313	6.0	478.1	478.1	479.0	0.9
W	135,645	1,673	24,644	5.9	479.9	479.9	480.3	0.4
X	136,201	872	18,337	8.0	480.9	480.9	481.5	0.6
Y	137,904	994	19,425	7.5	482.6	482.6	483.5	0.9
Z	138,801	838	18,551	7.9	484.6	484.6	485.2	0.6

[1]Stream distance in feet above County Line

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AA	138,801	663	15,626	8.0	485.2	485.2	485.9	0.7
AB	139,861	954[2]	18,758	6.7	486.4	486.4	487.1	0.7
AC	141,675	624	15,255	8.2	487.1	487.1	487.7	0.6
AD	143,860	787	21,845	5.7	490.2	490.2	490.7	0.5
AE	145,680	1,329	28,012	4.5	491.1	491.1	491.5	0.4
AF	147,745	2,262[2]	38,460	3.8	492.0	492.0	492.4	0.4
AG	148,900	1,532	31,052	4.7	492.3	492.3	492.7	0.4
AH	149,922	2,350	39,480	3.7	492.9	492.9	493.2	0.3
AI	151,397	2,240	35,033	4.1	493.5	493.5	494.1	0.6
AJ	152,818	2,010	30,073	4.8	494.4	494.4	495.1	0.7
AK	154,666	2,376	29,776	4.9	495.1	495.1	495.7	0.6
AL	156,379	2,761	27,282	5.3	496.0	496.0	496.5	0.5
AM	157,631	2,921	26,401	5.5	497.2	497.2	497.8	0.6
AN	159,948	3,082	32,918	4.4	500.3	500.3	500.9	0.6
AO	161,922	2,718	33,479	4.3	502.2	502.2	502.6	0.4
AP	163,429	3,405	44,004	3.3	504.7	504.7	505.6	0.9
AQ	163,786	2,760	35,446	4.1	504.7	504.7	505.6	0.9
AR	165,287	1,327	22,373	6.4	505.1	505.1	506.0	0.9

[1]Stream distance in feet above County Line
[2]Floodway Width Includes Overflow

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: GUADALUPE RIVER

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AS	166,553	1,278	30,671	4.7	515.4	515.4	515.6	0.2
AT	167,370	1,550	28,689	5.0	515.6	515.6	515.8	0.2
AU	168,734	2,319	40,411	3.6	516.3	516.3	516.9	0.6
AV	171,953	3,095	44,893	3.2	516.9	516.9	517.6	0.7
AW	173,627	2,562	32,459	4.4	517.5	517.5	518.1	0.6
AX	174,836	751	16,034	8.9	517.5	517.5	518.0	0.6
AY	176,064	91	21,482	6.7	519.0	519.0	519.7	0.7
AZ	177,386	1,500	31,807	4.4	520.5	520.5	521.2	0.7
BA	178,924	1,974	29,324	4.8	521.0	521.0	521.5	0.5
BB	179,961	1,257	30,363	5.9	522.1	522.1	522.6	0.5
BC	180,771	1,074	23,790	5.9	523.2	523.2	523.8	0.6
BD	182,256	565	16,489	8.5	523.6	523.6	524.2	0.6
BE	183,413	770	25,115	5.6	524.8	524.8	525.4	0.6
BF	185,142	472	13,424	10.4	524.8	524.8	524.9	0.1
BG	185,940	420	11,730	11.9	524.8	524.8	525.3	0.5
BH	186,839	422	12,372	11.3	526.6	526.6	527.0	0.4
BI	188,612	410	13,052	10.5	528.9	528.9	529.6	0.7
BJ	189,799	525	14,783	9.3	530.3	530.3	531.0	0.7

[1]Stream distance in feet above County Line

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BK	191,042	485	15,633	8.8	531.5	531.5	532.4	0.9
BL	192,185	738	19,297	7.1	533.6	533.6	534.3	0.7
BM	193,297	1,041	16,625	8.2	534.5	534.5	535.2	0.7
BN	194,434	500	12,829	10.7	540.5	540.5	541.1	0.6
BO	195,338	1,598	24,010	6.0	542.2	542.2	542.9	0.7
BP	196,429	1,753	23,850	6.0	542.9	542.9	543.4	0.5
BQ	197,395	2,226	42,419	3.2	543.8	543.8	544.3	0.5
BR	198,502	4,757	70,022	2.0	544.0	544.0	544.5	0.5
BS	199,435	4,609	70,787	1.9	544.0	544.0	544.5	0.5
BT	200,402	3,193	36,515	3.8	544.0	544.0	544.4	0.4
BU	201,645	2,017	22,458	6.1	544.2	544.2	544.6	0.4
BV	202,828	1,217	17,030	8.0	544.9	544.9	545.3	0.4
BW	204,511	901	16,086	8.5	546.2	546.2	546.6	0.4
BX	205,502	520	15,859	8.6	547.3	547.3	548.0	0.7
BY	206,866	1,406	16,985	8.1	548.1	548.1	548.7	0.6
BZ	207,908	1,945	21,464	6.4	549.3	549.3	550.1	0.8
CA	208,727	2,205	22,432	6.1	549.6	549.6	550.6	1.0
CB	209,864	2,322	24,803	5.5	550.5	550.5	551.4	0.9

[1]Stream distance in feet above County Line

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CC	210,996	1,183	16,288	8.2	550.7	550.7	551.6	0.9
CD	212,246	1,229	14,692	9.1	552.1	552.1	553.1	1.0
CE	213,575	1,867	16,741	8.0	554.0	554.0	555.0	1.0
CF	215,013	2,338	27,742	4.8	556.2	556.2	556.9	0.7
CG	216,509	2,490	30,706	4.1	557.1	557.1	557.7	0.6
CH	217,511	1,909	28,623	4.4	557.8	557.8	558.3	0.5
CI	219,165	1,359	25,689	4.9	558.8	558.8	559.3	0.5
CJ	220,975	831	14,166	8.9	559.3	559.3	559.8	0.5
CK	221,991	420	11,691	10.8	560.0	560.0	560.5	0.5
CL	223,346	1,409	25,237	5.0	563.0	563.0	563.3	0.3
CM	225,771	445	12,839	9.8	563.3	563.3	563.5	0.2
CN	227,856	451	12,592	10.0	565.4	565.4	565.8	0.4
CO	229,815	333	10,775	11.6	567.4	567.4	568.0	0.6
CP	231,349	465	13,876	9.0	571.0	571.0	571.6	0.6
CQ	232,679	567	14,498	8.6	572.5	572.5	573.2	0.7
CR	233,568	599	19,156	6.5	574.4	574.4	575.0	0.6

[1]Stream distance in feet above County Line

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CS	961	1,560	32,634	3.8	588.5	588.5	589.5	1.0
CT	1,832	1,296	29,630	4.1	588.5	588.5	589.5	1.0
CU	3,966	1,470	26,429	4.7	588.6	588.6	586.6	1.0
CV	6,040	894	24,844	4.9	589.0	589.0	590.0	1.0
CW	8,042	900	19,819	6.2	589.0	589.0	590.0	1.0
CX	10,047	893	25,010	4.9	589.7	589.7	590.6	0.9
CY	13,959	920	22,377	5.5	590.4	590.4	591.3	0.9
CZ	17,134	524	15,059	8.0	591.2	591.2	592.0	0.8
DA	19,115	502	13,111	9.2	591.6	591.6	592.4	0.8
DB	21,234	753	13,645	8.9	592.0	592.0	592.8	0.8
DC	23,381	1,070	13,663	8.9	592.2	592.2	593.1	0.9
DD	25,329	424	9,075	13.3	594.0	594.0	594.6	0.6
DE	26,994	582	14,452	8.4	597.8	597.8	598.5	0.7

[1]Stream distance in feet above Dunlap Dam

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: GUADALUPE RIVER

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	21,300	479	6,022	1.2	562.4	562.4	563.4	1.0
B	21,400	427	5,045	1.4	562.7	562.7	563.7	1.0
C	31,200	156	1,098	5.3	597.0	597.0	598.0	1.0

[1]Stream distance in feet above mouth

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Q	168,643	4,283 / 3,231[2]	40,014	2.4	350.8	350.8	351.4	0.6
R	175,976	3,706 / 1,953[2]	40,239	3.5	354.5	354.5	355.1	0.6
S	190,366	3,575 / 3,427[2]	36,934	5.7	361.8	361.8	362.6	0.8
T	194,426	4,017 / 2,680[2]	51,954	2.7	364.9	364.9	365.6	0.7
U	196,464	3,071 / 2,740[2]	35,913	4	365.7	365.7	366.5	0.8
V	200,764	3,673 / 1,666[2]	39,861	3.6	368.4	368.4	369.2	0.8
W	203,261	4,506 / 93[2]	48,255	3	369.5	369.5	370.4	0.9
X	217,139	4,126 / 3,428[2]	50,208	2.8	377.2	377.2	377.9	0.7
Y	223,385	3,234 / 1,932[2]	45,036	3.2	381.8	381.8	382.1	0.3
Z	226,868	4,296 / 2,723[2]	51,973	2.7	383.5	383.5	384	0.5
AA	232,057	5,140 / 3,999[2]	43,193	3.3	385.1	385.1	385.6	0.5
AB	241,866	4,265 / 0[2]	33,886	4.3	392.6	392.6	393.3	0.7
AC	244,962	5,293 / 180[2]	40,913	4.6	399.8	399.8	400.3	0.5
AD	249,714	5,180 / 107[2]	52,820	2.8	403.7	403.7	404.1	0.4
AE	255,688	2,017	25,689	5.6	407.6	407.6	408.5	0.9
AF	264,915	3,201 / 2,869[2]	29,945	4.8	414.1	414.1	415	0.9
AG	268,724	1,902 / 58[2]	31,547	4.6	418.5	418.5	419	0.5
AH	277,233	1,851 / 683[2]	22,383	6.1	424.4	424.4	424.9	0.5

[1]Stream distance in feet above confluence with Guadalupe River
[2]Width/Width within Guadalupe County

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SAN MARCOS RIVER

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AI	278,326	2,151 / 670[2]	25,608	5.3	426.1	426.1	426.8	0.7
AJ	282,667	2,358 / 707[2]	32,199	4.2	432.3	432.3	432.6	0.3
AK	287,283	2,512 / 452[2]	30,373	4.5	435.9	435.9	436.2	0.3
AL	289,796	1,739 / 1,301[2]	19,199	7.1	439.0	439.0	439.3	0.3
AM	297,868	4,267 / 4,114[2]	40,827	3.3	446.0	446.0	446.8	0.8
AN	307,716	1,366 / 343[2]	23,099	5.9	454.4	454.4	455.2	0.8
AO	316,807	2,319 / 183[2]	25,229	5.4	468.3	468.3	469.0	0.7
AP	330,631	2,586 / 1,268[2]	30,268	4.5	477.3	477.3	477.7	0.4
AQ	344,181	4,832 / 242[2]	32,545	4.2	482.7	482.7	483.1	0.4
AR	349,090	1,878 / 1,649[2]	22,812	6.0	488.2	488.2	489.0	0.8
AS	356,498	1,353 / 130[2]	13,705	5.9	498.5	498.5	499.2	0.7
AT	361,669	1,174 / 722[2]	17,281	5.4	504.9	504.9	505.7	0.8
AU	368,709	697 / 578[2]	12,624	7.6	516.4	516.4	516.5	0.1
AV	371,789	1,895 / 236[2]	31,726	4.8	521.3	521.3	521.8	0.5
AW	374,773	3,063 / 2,804[2]	18,919	10.3	524.9	524.9	525.3	0.4
AX	380,955	4,856 / 4,535[2]	24,688	6.2	535.6	535.6	536.0	0.4
AY	384,394	5,460 / 5,258[2]	35,829	4.3	541.7	541.7	542.0	0.3
AZ	387,804	4,298 / 2,564[2]	29,992	5.1	545.0	545.0	545.2	0.2

[1]Stream distance in feet above confluence with Guadalupe River
[2]Width/Width within Guadalupe County

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SAN MARCOS RIVER

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	6,500	945	14,519	1.6	559.2	559.2	560.2	1.0
B	6,600	1,027	16,011	1.5	559.4	559.4	560.4	1.0
C	17,500	828	8,992	2.5	566.5	566.5	567.5	1.0
D	17,650	769	9,954	2.2	567.0	567.0	568.0	1.0
E	38,050	463	4,621	3.2	593.6	593.6	594.6	1.0
F	43,750	452	3,581	3.5	604.5	604.5	605.5	1.0
G	43,850	434	3,768	3.4	605.0	605.0	606.0	1.0
H	57,650	604	3,450	3.4	630.3	630.3	631.3	1.0
I	57,750	925	5,986	1.9	632.5	632.5	633.5	1.0
J	57,850	707	5,573	2.1	633.4	633.4	634.4	1.0
K	71,200	596	3,061	3.4	657.8	657.8	658.8	1.0
L	79,400	191	1,235	5.1	679.9	679.9	680.9	1.0
M	89,950	179	919	5.4	716.7	716.7	717.7	1.0
N	90,050	263	1,236	4.0	717.8	717.8	718.8	1.0

[1]Stream distance in feet above mouth

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SANTA CLARA CREEK

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	13,150	392	1,946	3.1	629.7	629.7	630.7	1.0
B	13,250	562	3,911	1.6	632.4	632.4	633.4	1.0
C	13,350	934	1,222	0.8	634.3	634.3	635.3	1.0
D	17,650	411	2,087	2.4	643.2	643.2	644.2	1.0
E	22,700	100[2]	367	4.5	670.6	670.6	671.6	1.0

[1]Stream distance in feet above mouth
[2]Discharge Contained Within the Channel

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SANTA CLARA CREEK TRIBUTARY NO.1

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,000	157	812	5.1	665.6	665.6	666.6	1.0

[1]Stream distance in feet above mouth

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SANTA CLARA CREEK TRIBUTARY NO.2

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	24,865	860	6,017	2.5	681.7	681.7	682.7	1.0
B	25,795	850	4,925	3.1	685.4	685.4	686.2	0.8
C	26,703	701	3,571	4.2	686.9	686.9	687.9	1.0
D	27,017	935	8,570	1.8	693.0	693.0	694.0	1.0
E	27,927	1,040	9,066	1.7	693.7	693.7	694.6	0.9
F	28,050	1,110	10,238	1.5	695.5	695.5	696.5	1.0
G	28,530	1,700	12,147	1.2	695.7	695.7	696.6	0.9
H	29,542	575	3,937	3.8	697.0	697.0	697.6	0.6
I	31,287	1,004	3,620	4.2	701.0	701.0	701.8	0.8
J	32,192	1,037	3,635	4.2	706.4	706.4	706.7	0.3
K	32,883	385	1,804	5.4	708.8	708.8	709.3	0.5
L	32,939	345	2,336	5.3	710.5	710.5	710.9	0.4
M	33,981	500	1,904	3.9	714.6	714.6	715.1	0.5
N	34,887	615	1,734	4.3	720.1	720.1	720.1	0.0
O	35,846	670	2,140	3.5	725.2	725.2	726.1	0.9
P	37,273	505	1,153	7.1	734.0	734.0	734.1	0.1
Q	37,588	450	2,051	2.9	735.9	735.9	736.5	0.6
R	38,952	505	2,105	2.9	739.3	739.3	740.2	0.9

[1]Stream distance in feet above mouth

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TOWN CREEK

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	40,607	480	1,863	3.2	745.6	745.6	746.3	0.7
T	41,848	550	2,007	3.0	752.3	752.3	752.6	0.3
U	42,697	480	1,439	3.0	756.1	756.1	756.5	0.4
V	42,925	320	1,231	3.5	757.6	757.6	757.8	0.2
W	44,024	235	950	4.6	762.9	762.9	763.4	0.5
X	44,956	335	1,286	3.4	766.1	766.1	766.8	0.7
Y	45,646	270	969	4.5	770.2	770.2	770.5	0.3
Z	46,447	130	426	3.3	774.9	774.9	775.3	0.4
AA	46,874	115	323	4.4	776.9	776.9	777.4	0.5
AB	47,497	145	316	4.4	781.2	781.2	781.9	0.7
AC	47,884	130	266	5.3	786.8	786.8	786.8	0.0
AD	47,937	205	562	2.5	790.3	790.3	790.4	0.1
AE	48,216	165	232	6.1	791.9	791.9	792.8	0.9
AF	50,024	48	143	9.8	814.1	814.1	814.1	0.0

[1]Stream distance in feet above mouth

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TOWN CREEK

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,475	338	1,936	4.1	709.5	709.5	710.4	0.9
B	3,884	311	1,249	6.4	710.6	710.6	711.5	0.9
C	4,114	313	1,239	6.4	712.5	712.5	713.0	0.5

[1]Stream distance in feet above confluence with Town Creek

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	989	189	1,249	4.6	492.3	473.0[2]	473.3	0.3
B	2,025	87	763	7.5	492.3	480.1[2]	480.1	0.0
C	2,680	78	733	7.8	492.3	483.5[2]	483.6	0.1
D	3,895	80	365	5.3	492.3	484.7[2]	484.7	0.0
E	5,014	37	507	11.3	500.5	500.5	500.5	0.0
F	6,059	115	1,504	3.7	511.9	511.9	512.6	0.7
G	7,191	170	1,139	4.9	513.5	513.5	514.4	0.9
H	8,857	189	1,078	5.1	521.6	521.6	522.2	0.6
I	10,191	172	797	6.9	525.5	525.5	525.7	0.2
J	11,549	190	1,075	5.0	529.4	529.4	530.4	1.0
K	13,214	310	2,307	2.3	535.9	535.9	536.9	1.0
L	14,195	400	1,847	2.9	536.6	536.6	537.5	0.9
M	15,262	600	2,301	2.4	537.7	537.7	538.3	0.6
N	16,536	800	4,374	1.2	544.8	544.8	545.2	0.4
O	17,929	257	1,652	3.2	546.2	546.2	546.5	0.3
P	19,419	336	4,015	1.2	546.6	546.6	547.1	0.5
Q	20,389	384	2,416	2.0	547.1	547.1	547.7	0.6

[1]Stream distance in feet above confluence with Guadalupe River
[2]Elevation Computed Without Consideration of Backwater Effects

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WALNUT BRANCH

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	6,200	1,093	16,891	1.7	*	418.3	419.3	1.0
B	12,700	1,929	14,875	1.9	420.5	420.5	421.5	1.0
C	16,750	756	8,638	3.0	423.0	423.0	424.0	1.0
D	16,950	1,201	12,445	2.1	424.1	424.1	425.1	1.0
E	20,200	1,397	11,778	2.2	425.6	425.6	426.6	1.0
F	24,350	1,579	13,059	2.0	427.6	427.6	428.6	1.0
G	27,550	2,844	15,653	1.6	429.4	429.4	430.4	1.0
H	31,350	1,329	10,630	2.4	432.3	432.3	433.3	1.0
I	35,550	1,407	10,521	2.4	436.1	436.1	437.1	1.0
J	35,700	1,239	11,426	2.2	436.6	436.6	437.6	1.0
K	38,000	1,414	10,583	2.3	438.4	438.4	439.4	1.0
L	43,200	1,368	9,962	2.4	443.9	443.9	444.9	1.0
M	47,600	1,006	8,839	2.7	449.5	449.5	450.5	1.0
N	51,800	432	5,103	4.0	456.5	456.5	457.5	1.0
O	52,850	633	6,181	3.2	457.1	457.1	458.1	1.0
P	52,950	610	5,884	3.4	457.8	457.8	458.8	1.0
Q	55,900	565	5,639	3.5	462.8	462.8	463.8	1.0
R	56,250	1,093	8,933	2.2	463.0	463.0	464.0	1.0

[1]Stream distance in feet above mouth
*Data Not Available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YORK CREEK

Table 24: Floodway Data, (continued)

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
S	56,350	1,075	8,417	2.3	463.7	463.7	464.7	1.0
T	58,800	902	6,957	2.8	467.0	467.0	468.0	1.0
U	63,750	1,503	7,544	2.5	473.5	473.5	474.5	1.0
V	70,100	752	5,845	1.8	482.1	482.1	483.1	1.0
W	70,200	809	6,588	2.5	482.7	482.7	483.7	1.0
X	76,400	1,011	7,234	2.4	490.8	490.8	491.8	1.0
Y	84,000	523	4,319	3.8	500.9	500.9	501.9	1.0
Z	85,350	717	5,823	2.8	502.2	502.2	503.2	1.0
AA	85,550	712	5,139	3.1	502.3	502.3	503.3	1.0
AB	91,500	1,144	5,894	2.7	512.4	512.4	513.4	1.0
AC	99,900	808	5,084	2.8	526.6	526.6	527.6	1.0
AD	100,550	1,019	6,457	2.2	527.4	527.4	528.4	1.0
AE	100,650	980	5,706	2.4	527.9	527.9	528.9	1.0
AF	103,650	1,070	5,662	2.4	533.4	533.4	534.4	1.0
AG	106,300	898	4,174	2.6	538.6	538.6	539.6	1.0
AH	108,500	429	3,279	3.7	544.5	544.5	545.5	1.0

[1]Stream distance in feet above mouth

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

GUADALUPE COUNTY, TEXAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: YORK CREEK